Biological Evaluation and Effects Analysis for Proposed, Endangered, Threatened, and Sensitive Plants

Bird Track Springs Fish Habitat Enhancement Project

Wallowa-Whitman National Forest
Whitman Ranger District

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INTRODUCTION

This Biological Evaluation (BE) analyzes effects or impacts from the proposed action and alternatives to plants listed threatened or endangered species, or proposed for listing, and Forest Service sensitive plant species. A BE is prepared for any planned, funded, executed, or permitted programs and activities for possible effects to proposed, threatened, endangered, or sensitive (TES) species. The BE is the means of conducting the review and documenting the findings (FSM 2672.4). The objectives of the BE are to

1) ensure that Forest Service actions do not contribute to the loss of viability of any native or desired non-native plant animal species or contribute to trends toward Federal listing of any species;

2) comply with the requirements of the Endangered Species Act that actions of Federal agencies not jeopardize or adversely modify critical habitat of Federally listed species; and

3) provide a process and standard by which to ensure that threatened, endangered, proposed, and sensitive species receive full consideration in the decision making process

This BE evaluates the following: 1) the Pacific Northwest Region Regional Forester's Sensitive Species list (January 2015 - http://www.fs.fed.us/r6/sfpnw/issssp/agency-policy), for plant species known or with potential to occur on the Wallowa-Whitman National Forest (Appendix A); and 2) threatened endangered or proposed species as indicated by the U.S. Department of Interior, Fish and Wildlife Service, Oregon Fish and Wildlife Office website (http://www.fws.gov/oregonfwo/Species/Lists/RequestList.asp) updated October 2016. This link references the list of threatened and endangered species that may occur in selected Oregon counties. One plant species is listed for Union County, Howell's spectacular thelypody (Thelypodium howellii ssp. spectabilis), a threatened plant.

This following is a listing of 18 sensitive plant species which were identified in the pre-field review as potentially occuring within the Birdtrack Springs Fish Enhancement project area.

- *Botrychium ascendens, B. campestre, B. crenulatum, B. lineare, B. lunaria, B. montanum, B. paradoxum* and *B. pedunculosum.*
- *Carex cordillerana and Carex retrorsa*
- *Cyprepedium fasciculatum*
- *Eleocharis bolanderi*
- *Lycopodium complanatum*
- *Phacelia minutissima*
- *Phlox multiflora*
- *Plantanthera obtusata*
- *Schistidium cinclidodonteum* and
- *Trifollium douglasii*

DESCRIPTION OF PROPOSED ACTIONS

The natural processes within the Upper Grande Ronde River system have been negatively impacted by disurbances including: timber harvest, splash dams, and hydraulic mining, dredging, railroad and road embankments. In the recent past, the project area has been heavily utilized as a dispersed camping site, with multiple travelways that directly access the Grande Ronde River. Remnants of the Mount Emily Logging Company railroad grade have been breached and removed in a few locations, but still act as a barrier to natural floodplain activities and water storage.

Primary actions proposed under the Birdtrack Springs Fish Enhancement Project include restoring degraded riparian and floodplain habitats, improving instream habitat diversity, and improving water quality for adult and juvenile summer steelhead and spring Chinook salmon.

Rehabilitation objectives focus on (1) channel-floodplain interactions, (2) re-meandering the channel, (3) channel planform, geometry and bedform diversity, and (4) enhancing fish cover.

There are two alternatives developed and analyzed under the BTSFEP. They are briefly summarized in the table, below. Refer to The EA for specifics of the following proposed restoration activities/actions which include:

Table 1. Brief Summary of Alternatives

Alternative 1 – No-Action Alternative	No project activities would be authorized under this alternative and there would be no improvements or changes made. The area would continue to be managed as is.
Alternative 2 – Proposed Action Alternative	This is the proposed action that would respond to the purpose and need and accomplsih project objectives. Proposed actions include: - Dewatering / Fish rescue (1.8 miles) - Staging and storage areas (50 acres) - Channel realighment (2.09 miles) - Instream enhancement (640 large wood structures); 540 boulders (0.1 acres) - Road work (miles): 21 of 22 Temporary Access Roads (3.85 miles = 13.2 acres); 4 temporary river crossings; No culvert replacement - Bear Creek Ranch activities: channel excavation (0.14 miles); gravel bar construction (0.83 acres); willow trench construction & live cottonwood flood fence construction (392 feet); cover logs/floodplain roughness/key members (31); cobble/boulder placement (1.119 cubic yards. - Jordan Creek Ranch activities: corral relocation (5 acres); large woody removal units (12 units @ 1,059 acres total). - Large wood installation/racking/pinning (5,380 trees) - Interpretail trail relocation (1.0 miles)

Action alternatives include road work, including temporary road construction, road maintenance, road decommissioning and road reconstruction.

Activities on private lands include:

- Moving location of approximately 5 acres utilized for the Jordan Creek cattle operation (including corral) to another location; and
- Construction of a side channel on a section of private land located on the Bear Creek Ranch.

Botanical Project Design Features and Mitigations

To minimize or eliminate deleterious impacts to TES plants or potential TES/Native plant habitat, the following Project Design Features have been incorporated into the action alternatives.

- To protect native plant habitat and potential habitat for sensitive plant species from competition with undesirable non-native species, follow Forest Plan and Regional guidelines for including weed spread prevention measures in implementation contracts and for utilizing native species for restoration and erosion control work.

    - Minimize road and landing locations &&& in RHCAs;

    - to minimize disturbance of riparian ground cover and vegetation.

- Rehabilitate landings after completion of timber harvest activities where needed to minimize colonization by undesirable plant species and to minimize bare soil;

- To protect potential sensitive plant habitats, avoid ground disturbing activities (piling, decking, motorized travel, parking, staging operations) on previously undisturbed non-forested terrain.

- To protect native plant habitat and potential habitat for sensitive plant species from competition with undesirable non-native species, follow Forest Plan and Regional guidelines for including weed spread prevention measures in implementation contracts and for utilizing native species for restoration and erosion control work.

- To protect native plant habitat and potential habitat for sensitive plant species from the potential cumulative effects of soil disturbance and erosion as a result of vegetation management activities:

    - Rehabilitate landings after completion of timber harvest activities where needed to minimize colonization by undesirable plant species and to minimize bare soil;

    - Use BMPs (e.g. scattering slash, seeding, construction of waterbars) to minimize erosion from skidtrails.

DESCRIPTION OF THE ACTION AREA

The Bird Track Springs Fish Habitat Enhancement Project extends approximately four miles along the mainstem upper Grande Ronde River from upstream of Longley Meadows on National Forest System lands downstream to about the confluence of Spring Creek. The project reach includes Wallowa-Whitman National Forest and private lands (Bear Creek Ranch and the Jordan Creek Ranch) along State Highway 244.

The analysis area is located in Township 3 South, Range 36 East, Sections 15 and 16; and includes 1.9 miles of the Grande Ronde River along State Highway 244. The project area consists of 1.2 miles of river on NFS lands, 0.1 miles along state lands, and 0.6 miles on privately owned lands downstream to Bear Creek Ranch. The project area includes the following area boundary, subwatersheds and affected river miles:

Table 2. Project Area

	Project Area Acres
Project Area Boundary (PAB) Acres	6,301
• USFS Lands	138
• Private Lands	6,149
• State Lands/ODOT	14

Subwatershed:	Project Area Acres
Coleman Ridge-Grande Ronde River – 17,700 acres	896
Jordan Creek – 16,376 acres	3,594
Lower Beaver Creek – 22,813 acres	1,797

Affected River Miles	Project Area Acres
• USFS Miles	1.9
• State Land Miles	1.3
• Private Land Miles	0
	0.6

Past anthropogenic disturbances have resulted in the loss channel structures, vegetation and floodplain habitat.

The analysis area is characterized by a mixture of coniferous and deciduous tree species including Ponderosa pine, Englemann spruce; and willow, alder, quaking aspen and black cottonwood. Existing riparian vegetation includes scattered patches of woody shrubs, immature trees, and mesic forbs. A large portion of the area consists of annual grasses and non-native herbaceous vegetation where the floodplain had been cleared and drained for ranching.

The proposed area has been designated as MA 3 (133 acres) and 5 acres MA15 (old growth).

AFFECTED ENVIRONMENT

The Forest Geographic Information System (GIS), rare plant data base (NRIS), and District files were examined to identify whether any threatened, endangered or sensitive (TES) plants or potential habitat are known in or near the analysis area boundary (PAB). There are no documented occurrences within the project area boundary.

Based on present available information, it was determined that the analysis area contains potential TES plant habitat. A pre-field review of district data and the Wallowa-Whitman sensitive plant list shows that the analysis area contains potentially suitable habitat for 18 TES plants (Table 3). The table includes an assessment as to the likelihood of these species occurring in the analysis area.

Table 3. Pre-field species checklist for BTS analysis area

Scientific name	Common name	Habitat summary	Likelihood of occurring within the analysis area
Botrychium ascendens	Upward-lobed moonwort	Moist meadows, edges of ponds and lakes, grassy forests. Some species have been found under various species of conifer trees. Sandy soils, or areas moist in spring. In forested areas, often associated with queens-cup bead lily or strawberries.	Habitat is present in the area, especially along the mesic seepy areas. The most likely species would be B. montanum.
Botrychium campestre	Prairie moonwort		
Botrychium crenulatum	Crenulate moonwort		
Botrychium lineare	Slender moonwort		
Botrychium lunaria	Common moonwort		
Botrychium montanum	Mountain grape-fern		
Botrychium paradoxum	Twin-spiked moonwart		

Scientific name	Common name	Habitat summary	Likelihood of occurring within the analysis area
Botrychium pedunculosum	Stalked moonwort		
Carex cordillerana	Cordilleran sedge	Dry forests and riparian woods. Mid-elevations.	Potential habitat may occur within the project area.. One site is located further up on the Grand Ronde River.
Carex retrorsa	Retrorse sedge	Swamps, wet thickets, often along streams, marshes, sedge meadows, shores of streams, ponds, and lakes. Our populations are on basalt and other volcanic derived soils.	**Potential habitat unlikely** to occur. One known location on Eagle Creek on the east side of the district, but has not been relocated.
Cypripedium fasciculatum	Clustered lady's-slipper	Forest, grand fir to Ponderosa pine, and warm riparian forests. Populations generally found in 60-100% shade. Ultra basic soils, granitics, schists, limestone, and quartz-diorite. Rocky to loamy soils in damp to dry sites. Seeps / springs.	Potential habitat may occur within the project area, however no sites known for the W-WNF. One historic collection on the east side of the district. Has not been relocated.
Eleocharis bolanderi	Bolander's spikerush	Fresh, often summer-dry meadows, springs, seeps, stream margins. Wet places, low to mid-montane. In vernally wet swales. Along intermittent streams, moist meadows.	Potential habitat may occur in within the project area. Known sites occur within the Starkey area of the LGRD.
Lycopodium complanatum	Ground cedar	Dry open coniferous or mixed forest alpine slopes; coniferous forest, with thick duff. Often on rotting logs, moist forest, riparian areas. Also in meadows and on open ridge tops.	**Very unlikely**. This species is very rare in northeast Oregon but one site is documented for LGRD within the Grande Ronde Watershed.
Phacelia minutissima	Dwarf phacelia	Moist meadow and seep edges, or on vernally wet open meadows and barren slopes. Reported to occur with aspen in other areas. Gravely, clay-loam, well-drained soils.	Suitable habitat may occur in the project area, primarily associated with aspen. Known populations occur on the east side of the district.
Phlox multiflora	Many-flowered phlox	Basalt cliffs, rocky outcrops, rocky openings in dry forest. Wooded rocky areas, as well as in openings in the forest. Loose substrate rather than exposed hard rocks. Residual soils, gravels, cobbles.	**Unlikely to occur** in the analysis area; however populations are located in forested habitat, upstream of the project area.
Platanthera obtusata	Small northern bog-orchid	Mesic to wet coniferous forest, forested fens, sphagnum bogs, stream banks, tundra, moist roadsides; 0-3500 m (18). Some-times found growing on top of rotting logs. Often with Engelmann spruce, or sub-alpine fir. Not necessarily on limestone soils.	**Not likely to occur** in the project area. Prefers moister, boggier habitat that is not present in the analysis area.
Schistidium cinclidodonteum	Moss	Not much known about this species. Forms large loose or dense sods on wet or dry rocks or on soil in crevices of rocks and boulders often along intermittent streams at elevations of 5,000-11,000 ft. Could include ponderosa pine forest type.	**Not likely to have suitable habitat** in the analysis area.
Trifolium douglasii	Douglas' clover	Moist or mesic meadows, prairie remnants, along riparian areas along streams. In swales, along intermittent streams, and in vernally wet areas. Alluvial soils, ash/clay, fine silt to sandy.	**Not likely to occur** within the project area. Although it does occur within suitable areas upstream of the project area.

FIELD SURVEYS

The BTS analysis area was managed as a recreational Nature Trail since the late 1990's (1999). Surveys were conducted during the summers of 2015 and 2016 to determine the presence of species suspected to occur in the analysis area.

A mix of intuitive controlled and intensive surveys were conducted on May 11 and 14; June 9, and July 21 of 2015; and May 10, 13, 19 and 25; June 21, 24 and 28; and July 11 and 21 of 2016. Survey areas were identified based on where ground disturbing activities were proposed to occur and areas with suitable habitat, as estimated from aerial photography and site visits.

Surveys focused on those species most likely to occur, and areas of previously disturbed areas as well as those which would likely be highly altered by proposed project activities. Surveys were conducted by forest service personel during the appropriate times for identifying species of concern.

Additional information regarding existing vegetation was found within the publication Riparian Vegetation Mapping In The Grande Ronde Watershed, Oregon; Monitoring And Validation Of Spring Chinook Habitat Recovery And Population Viability – Summary of Field Observations, Data and Mapping; prepared by the Environmental Research & Services; Anchorage, Alaska & Forest Grove, Oregon; and Elizabeth Crowe; Fort Collins, Colorado. A portion of these surveys overlap with the Bird Track Springs Fish Restoration analysis area.

The intuitive, random meander (Nelson 1985) was used to conduct the botanical surveys. With this method, the surveyor meanders throughout the area honing in on suitable habitat for plant species of interest. The intuitive meander is the agency standard and, as applied to this analysis area, is adequate to detect the target species. The intuitive meander was also used to survey the proposed activity area on private lands; at a level appropriate to the risk of impacting the plant species.

Results

The pre-field assessment identified 18 species that could have potential habitat within the analysis area (Table 3). Field surveys primarily focused on areas of potential habitat for riparian associated plant species, those most likely to occur. No TEPS species were located.

Due to the nature of the project, there would be large areas of soil disturbance; yet many areas of vegetation will be salvaged to reuse in the project. Connecting old channels; soaking the floodplain and storing water to better utilize precipitation and snow/flood events would improve fish habitat through higher flows/pools and cooler water temperature. With a higher water table, there should be an increase of mesic/wetland associated plant species, and potentially suitable habitat for TES plant species.

Survey records, aerial photos and site visits were also used to locate special habitats; which were thoroughly searched. These unique habitats are of particular interest because they often provide suitable habitat for sensitive species; including:

- Riparian habitats including seeps, springs and small tributary streams;
- Aspen groves;
- Wet meadow habitat;

Much of the area has been highly disturbed from previous recreational activities including dispersed/group camping, and cross country travel by motorized vehicles.

Additional field sureys by forest service personnel resulted in the discovery of numerous weed infestations (diffuse knapweed, leafy spurge and others; refer to the noxious weed writeup, by Scott Schaeffer, Invasive Coordinator at LGRD.

The following five species identified in the pre-field review are considered highly unlikely to occur in the project analysis area: *Carex retrorsa, Phlox multiflora, Planthera ocbtusata, Schistidium cinclidodonteum and Trifolium douglasii.*

These species are presumed not present within the analysis area; project effects to these five species are not discussed further. (Refer to Table 3. Pre-field checklist for reasoning.)

ENVIRONMENTAL CONSEQUENCES

Regulatory Framework

To meet Forest Service objectives for sensitive species, one of the following determinations, as analyzed through the biological evaluation, must be found for each sensitive species, or its habitat, that may be affected by the project (USDA Forest Service 1995):

- "No impact";
- "Beneficial impact"; or,
- "May impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species." Activities or actions that have effects that are immeasurable, minor or are consistent with conservation strategies would receive this conclusion.

For populations that are small or vulnerable each individual may be important for short and long term viability. The loss of individuals or habitat can be considered significant when the potential effect on a species may

- Contribute to a trend toward federal listing;
- Result in a significantly increased risk of loss of viability to a species; or,
- Result in a significantly increased risk of loss of viability to a significant population.

If the project analysis concludes that impacts to individuals of a sensitive species would result in any one of these three conditions, then the appropriate finding is, "will impact individuals or habitat with a consequence that the action may contribute to a trend towards federal listing or cause a loss of viability to the population or species." This finding would not be consistent with Forest Service objectives for sensitive species.

Methodology and Measurement Indicators

The direct, indirect and cumulative effects analysis area is equivalent to the project area boundary. The actions proposed within the project area boundary would not affect federally listed or regional forester sensitive species beyond the project area boundary.

The anticipated project effects of each alternative were evaluated in the biological evaluation (available in the project file) and a determination of "no impact," "beneficial impact," or "may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species" was reached for each sensitive species known to exist in, or have suitable habitat, within the project area. In situations where individual plants of a species may be affected by project activities, no standard exists by which to compare anticipated levels of impact before crossing the threshold where a loss of viability to the species or significant population would be expected. Professional judgment is used to analyze whether the magnitude of effects are immeasurable, minor or rise to the level of significant loss of species or population viability.

Threatened and Endangered Species

The U.S. Fish and Wildlife Service provides species lists for actions carried out, funded or authorized by Federal agencies via the Internet at:

http://www.fws.gov/oregonfwo/Species/Lists/RequestList.asp. The purpose of a species list is to provide information on threatened and endangered species that may be affected by an agency action. The species list fulfills the U.S. Fish and Wildlife Service's requirement, under section 7(c) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), to provide a list of threatened and endangered species upon request for Federal actions and National Environmental Policy Act (NEPA) compliance. The downloaded list, "Federally Listed, Proposed, Candidate Species and Species of Concern Under the Jurisdiction of the Fish and Wildlife Service Which May Occur Within Baker County, Oregon" lists one threatened plant, Howell's spectacular thelypody (*Thelypodium howelli* var. *spectabilis*).

Howell's spectacular thelypody is known to occur in relatively moist, alkaline meadows in or adjacent to valley bottoms. Baker County populations occur on private and county lands near North Powder, Haines and Baker City (USFWS 2002). The nearest populations of Howell's spectacular thelypody are approximately 28 miles west of the analysis area and suitable habitat for the plant does not exist in the BTS Vegetation Management Analysis area.

Because there is no Howell's spectacular thelypody habitat or plants in the analysis area, this project would have no effect to this federally threatened plant species.

Regional Forester's Sensitive Species

The following 13 species may exist within the BTS project area. No sites for any R-6 sensitive plant species were located.

Botrychium* species (Grapeferns/Moonworts): *Botrychium ascendens, B. campestre, B. crenulatum, B. lineare, B. lunaria, B. montanum, B. paradoxum, B. pedunculosum

There are no known *Botrychium* populations within the analysis area but there is potential habitat. *Botrychium* species are reported from floodplain terraces near perennial streams, mossy granite ledges in the splash zone of streams, mesic meadows and damp ground in forested settings. They have been affiliated with semi-permanently flooded marshy meadows and small forb dominated openings adjacent to, or within cool, moist forest stands of Engelman's spruce, lodgepole pine, or grand fir. None of the eight *Botrychium* species identified in the pre-field review were discovered. Survey dates were an appropriate time of year to search for these *Botrychium* species.

DIRECT, INDIRECT and CUMULATIVE EFFECTS

Botrychium species are known from mesic areas. Because the BTS project would affect much of the riparian areas and other mesic features, project impacts could occur.

A limited amount of log skidding through riparian zones could negatively impact these plant species by soil disturbance and removing vegetation from suitable habitat areas.It is unlikely that placement and use of storage areas, stockpile areas and access areas will impact suitable habitat. While habitat and *Botrychium* sites have been located upstream within the Grande Ronde River watershed. Many areas of suitable habitat were searched, however no plants were located.

Other possible actions within the analysis area such as road maintenance and ongoing activities like recreation are unlikely to impact *Botrychium* because any potential habitat has already been negatively impacted.

Botrychium species may occur in the analysis area; and may be negatively impacted by project activities; however cumulative impacts would not increase significantly.

DETERMINATION AND CONCLUSION

This project **may impact** Botrychium plants or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species. (MIIH).

***Carex cordillerana* (cordilleran sedge)**

Carex cordillerana is a small tufted sedge that grows largely in upland plant communities. It resembles a bunch-grass in appearance, about 6"-14" tall. It flowers during spring, with fruits maturing in early summer.

Existing sites for *Carex cordillerana* occur primarily within three conifer donimated plant associations: Douglas-fir/snowberry, grand fir/snowberry, and ponderosa pine/snowberry. The planning area consists of moist (2 acres) and dry upland (14 acres) forested habitats; Low soil moisture riparian forest (108 acres) and moderate moisture riparian herbland (10 acres).

Most populations have been found in patches, under the forest canopy and in the forest-grassland ecotone as well as within "riparian areas. One population for his species has been located within in the riparian area, upriver from the project area. Surveys were conducted during the appropriate time for easy identification of this species.

DIRECT, INDIRECT and CUMULATIVE EFFECTS

It is unlikely that *Carex cordillerana* occurrences exist undetected in suitable habitat within the analysis area. For these reasons, none of the thresholds triggering a trend to federal listing, or a significant risk of a loss of species or population viability would be reached.

As with the majority of sensitive plant species, conclusive information as to their growth habits and how various influences (natural and human) may benefit or negatively impact is largely unknown.

DETERMINATION AND CONCLUSION

This project **may impact individuals or habitat** of *Carex cordillerana*, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species (MIIH).

***Cypripedium fasciculatum* (clustered lady-slipper)**

This member of the orchid family occurs in moist, coniferous forest, often on northerly aspects with filtered sunlight. It occurs around springs, and along riparian zones. Although there are no documented sites on the forest, a historic (1957) record from another area of the forest (East Eagle drainage) does exist and numerous attempts have been made to relocate the species. It has never been relocated.

Cypripedium fasciculatum has an intricate life cycle that is not fully understood. All orchids appear to require the presence of a fungus, usually a *Rhizoctonia*, before the seed will germinate in the wild (Arditti 1967; Doherty 1997; Wells 1981). Doherty (1997) reports that orchid seedlings depend on the fungal symbiont to survive. Once an orchid reaches maturity

and becomes autotrophic, the degree of dependence may change. Establishment of new populations requires suitable conditions for the fungus. What these conditions are is not known, but can be presumed to be moist and shady with adequate organic material to support growth of the heterotrophic fungus.

DIRECT, INDIRECT and CUMULATIVE EFFECTS

Literature suggests that activities that remove canopy in large areas or patches close to *C. fasciculatum* populations could alter the microclimate of sites by creating edge effects. Depending upon distance and exposure, there could be changes in several microclimate variables such as air temperature, relative humidity, soil temperature, and moisture (Chen 1995). High-intensity fire that eliminates the duff layer also destroy *C. fasciculatum* rhizomes (Harrod and Knecht 1996). *C. fasciculatum* populations are unlikely to occur; therefore, there would be no cumulative impacts.

DETERMINATION AND CONCLUSION

Because the existence of *C. fasciculatum* on the forest and in the analysis area is very unlikely, this project would have **no impact** (NI) to clustered ladyslipper.

***Eleocharis bolanderii* (Bolander's spikerush)**

Springs, seeps, stream margins, vernally wet swales and moist/summer-dry meadows may support populations of Bolander's spikerush. One occurrence has been documented in the Starkey area of the forest. Although there is potential habitat for this species within riparian zones; none were located. Surveys were conducted at the appropriate time for identification of the species.

DIRECT, INDIRECT AND CUMULATIVE EFFECTS

This species is not common on the forest, but impacts to potential habitat could occur from project activities. However, based on the large area of potential habitat, it is unlikely impacts would occur; therefore cumulative impacts would not increase.

DETERMINATION AND CONCLUSION

This project would have **no impact** to *Eleocharis bolanderii.*

Phacelia minutissima (dwarf phacelia)

Habitat for *Phacelia minutissima* is described as moist meadows and seep edges, or on vernally wet open meadows and barren slopes; and gravely, clay-loam, well drained soils. It has also been reported to be found in association with aspen. This is a small annual species that is difficult to locate once its bloom season has passed. Areas of deciduous shrubs/trees would be salvaged and reused upon the project.

DIRECT, INDIRECT AND CUMULATIVE EFFECTS

This species is not common on the forest, but has been located in small vernal streamlets or road beds. Actions within the analysis area may have the potential to impact any undetected dwarf phacelia populations but are unlikely; therefore the cumulative impacts would not increase.

DETERMINATION AND CONCLUSION

This project **may impact individuals or habitat** of *Phacelia minutissima*, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species (MIIH).

Table 8. Effects Call by Species for those 13 species which may have suitable habitat within the BirdTrack Springs Fish Restoration Project Area

Scientific Name	Common Name	Effect call for BTS Project Alternative 2
Botrychium ascendens	Upward-lobed moonwort	MIIH
Botrychium campestre	Prairie moonwort	
Botrychium crenulatum	Crenulate moonwort	
Botrychium lineare	Slender moonwort	
Botrychium lunaria	Moonwort	
Botrychium montanum	Mountain grape-fern	
Botrychium paradoxum	Twin-spiked moonwart	
Botrychium pedunculosum	Stalked moonwort	
Carex cordillerana	Cordilleran sedge	MIIH
Cypripedium fasciculatum	Clustered lady's-slipper	NI
Eleocharis bolanderi	Bolander's spikerush	NI
Lycopodium complanatum	Ground cedar	NI
Phacelia minutissima	Dwarf phacelia	MIIH

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Appendix A – Sensitive Species Lists

2008 Regional Forester's Sensitive Plant List

Scientific Name	Common Name	Forest-wide Distribution S=Suspected; D=documented
ACHNATHERUM WALLOWAENSIS	WALLOWA RICEGRASS	D
ALLIUM GEYERI VAR. GEYERI	GEYER'S ONION	D
ARABIS HASTATULA	HELLS CANYON ROCKCRESS	D
ASPLENIUM TRICHOMANES-RAMOSUM	GREEN SPLEENWORT	D
BOTRYCHIUM ASCENDENS	UPWARD-LOBED MOONWORT	D
BOTRYCHIUM CAMPESTRE	PRAIRIE MOONWORT	D
BOTRYCHIUM CRENULATUM	CRENULATE MOONWORT	D
BOTRYCHIUM HESPERIUM	WESTERN MOONWORT	D
BOTRYCHIUM LINEARE	SLENDER MOONWORT	D
BOTRYCHIUM LUNARIA	MOONWORT	D
BOTRYCHIUM MINGANENSE (*)	GRAY MOONWORT	D
BOTRYCHIUM MONTANUM	MOUNTAIN GRAPE-FERN	D
BOTRYCHIUM PARADOXUM	TWIN-SPIKED MOONWART	D
BOTRYCHIUM PEDUNCULOSUM	STALKED MOONWORT	D
BUPLEURUM AMERICANUM	BUPLEURUM	D
CALOCHORTUS MACROCARPUS VAR. MACULOSUS	GREEN-BAND MARIPOSA-LILY	D
CALOCHORTUS NITIDUS	BROAD-FRUIT MARIPOSA-LILY	D
CAREX ABRUPTA	ABRUPT-BEAKED SEDGE	D
CAREX ATROSQUAMA	BLACKENED SEDGE	D
CAREX CAPITATA	CAPITATE SEDGE	S
CAREX CORDILLERANA	CORDILLERAN SEDGE	D
CAREX DIANDRA	LESSER PANICLED SEDGE	S
CAREX DIOICA (VAR. GYNOCRATES)	YELLOW BOG SEDGE	D
CAREX IDAHOA	IDAHO SEDGE	S
CAREX LASIOCARPA VAR. AMERICANA	SLENDER SEDGE	D
CAREX MEDIA	INTERMEDIATE SEDGE	D
CAREX NARDINA	SPIKENARD SEDGE	D
CAREX PELOCARPA	NEW SEDGE	D
CAREX PYRENAICA SSP. MICROPODA	PYRENAEAN SEDGE	D
CAREX RETRORSA	RETRORSE SEDGE	D
CAREX SUBNIGRICANS	DARK ALPINE SEDGE	D
CAREX VERNACULA	NATIVE SEDGE	D
CASTILLEJA FRATERNA	FRATERNAL PAINTBRUSH	D
CASTILLEJA RUBIDA	PURPLE ALPINE PAINTBRUSH	D
CHEILANTHES FEEI	FEE'S LIP-FERN	D

Scientific Name	Common Name	Forest-wide Distribution S=Suspected; D=documented
CICUTA BULBIFERA	BULB-BEARING WATER-HEMLOCK	S
CRYPTOGRAMMA STELLERI	STELLER'S ROCKBRAKE	S
CYPERUS LUPULINUS SSP. LUPULINUS	A CYPERUS	D
CYPRIPEDIUM FASCICULATUM (*)	CLUSTERED LADY'S-SLIPPER	D
ELATINE BRACHYSPERMA	SHORT SEEDED WATERWORT	S
ELEOCHARIS BOLANDERI	BOLANDER'S SPIKERUSH	S
ERIGERON DISPARIPILUS	WHITE CUSHION ERIGERON	D
ERIGERON ENGELMANNII VAR. DAVISII	ENGELMANN'S DAISY	D
GENTIANA PROSTRATA	MOSS GENTIAN	S
GENTIANELLA TENELLA SSP. TENELLA	SLENDER GENTIAN	S
HELIOTROPIUM CURASSAVICUM	SALT HELIOTROPE	S
JUNCUS TRIGLUMIS VAR. ALBESCENS	THREE-FLOWERED RUSH	D
KOBRESIA BELLARDII	BELLARD'S KOBRESIA	D
KOBRESIA SIMPLICIUSCULA	SIMPLE KOBRESIA	D
LIPOCARPHA ARISTULATA	ARISTULATE LIPOCARPHA	D
LISTERA BOREALIS	NORTHERN TWAYBLADE	D
LOMATIUM ERYTHROCARPUM	RED-FRUITED LOMATIUM	D
LOMATIUM GREENMANII	GREENMAN'S DESERT PARSLEY	D
LOMATIUM RAVENII	RAVEN'S LOMATIUM	S
LYCOPODIUM COMPLANATUM	GROUND CEDAR	D
MIMULUS HYMENOPHYLLUS	MEMBRANE-LEAVED MONKEYFLOWER	D
Mirabilis macfarlanei	MacFarlane's Four-O'clock	D
MUHLENBERGIA MINUTISSIMA	ANNUAL DROPSEED	S
OPHIOGLOSSUM PUSILLUM	ADDER'S-TONGUE	D
PELLAEA BRIDGESII	BRIDGES' CLIFF-BRAKE	D
PHACELIA MINUTISSIMA	DWARF PHACELIA	D
PHLOX MULTIFLORA	MANY-FLOWERED PHLOX	D
PLATANTHERA OBTUSATA	SMALL NORTHERN BOG-ORCHID	D
PLEUROPOGON OREGONUS	OREGON SEMAPHOREGRASS	S
POTAMOGETON DIVERSIFOLIUS	RAFINESQUE'S PONDWEED	S
RORIPPA COLUMBIAE	COLUMBIA CRESS	S
ROTALA RAMOSIOR	LOWLAND TOOTHCUP	S
RUBUS BARTONIANUS	BARTONBERRY	D
SALIX FARRIAE	FARR'S WILLOW	D
SALIX WOLFII	WOLF'S WILLOW	D
SAXIFRAGA ADSCENDENS SSP. OREGONENSIS	WEDGE-LEAF SAXIFRAGE	D
SENECIO DIMORPHOPHYLLUS	PAYSON'S GROUNDSEL	D
Silene spaldingii	Spalding's Catch-fly	T

Scientific Name	Common Name	Forest-wide Distribution S=Suspected; D=documented
SUKSDORFIA VIOLACEA	VIOLET SUKSDORFIA	S
THALICTRUM ALPINUM	ALPINE MEADOWRUE	D
THELYPODIUM EUCOSMUM	ARROW-LEAF THELYPODY	S
TOWNSENDIA MONTANA	MOUNTAIN TOWNSENDIA	D
TOWNSENDIA PARRYI	PARRY'S TOWNSENDIA	D
TRIFOLIUM DOUGLASII	DOUGLAS' CLOVER	D
TROLLIUS LAXUS VAR. ALBIFLORUS	AMERICAN GLOBEFLOWER	D
UTRICULARIA MINOR	LESSER BLADDERWORT	S
DERMATOCARPON MEIOPHYLLIZUM (*)	LICHEN	S
LEPTOGIUM BURNETIAE (*)	LICHEN	S
LEPTOGIUM CYANESCENS (*)	LICHEN	S
PELTIGERA PACIFICA (*)	LICHEN	S
BARBILOPHOZIA LYCOPODIOIDES	LIVERWORT	D
JUNGERMANNIA POLARIS	LIVERWORT	D
PELTOLEPIS QUADRATA	LIVERWORT	D
PTILIDIUM PULCHERRIMUM	LIVERWORT	S
ENCALYPTA INTERMEDIA	MOSS	D
HELODIUM BLANDOWII	MOSS	S
RHIZOMNIUM NUDUM (*)	MOSS	S
SCHISTIDIUM CINCLIDODONTEUM	MOSS	D
SCHISTOSTEGA PENNATA (*)	MOSS	S
SCOULERIA MARGINATA	MOSS	S
SPLACHNUM AMPULLACEUM	MOSS	S
TETRAPHIS GENICULATA (*)	MOSS	S
TOMENTYPNUM NITENS	MOSS	S
TORTULA MUCRONIFOLIA	MOSS	S

W-WNF = Occurrence on the Wallowa-Whitman National Forest

D =Species that have been documented on land owned or administered by the Wallowa-Whitman National Forest.
H =Historical records (exact location have not been confirmed or relocated).
S =Species that are suspected to occur on land within the Wallowa-Whitman National Forest.
P =Species that may possibly (but not as likely) occur on land within the Wallowa-Whitman National Forest.